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09/745,157	12/20/2000	Jeffrey A. Korn	1006.01-US	7176

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EXAMINER

PHAN, HANH

ART UNIT PAPER NUMBER

2633

DATE MAILED: 12/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/745,157

Applicant(s)

KORN ET AL.

Examiner

Hanh Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 & 6. 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, **the features of the invention specified in claim 13 "a WDM filter for separating the filtered signal into a first sub-band and a second sub-band and a first sub-band detector and a second sub-band detector"** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 recites the limitation "**the filter tuning voltage generator**" in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "**the filter tuning voltage generator**" in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 7, 8, 14, 15, 21, 22, 26, 28 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Ransford et al (US Patent No. 6,532,087).

Regarding claims 1, 21 and 22, referring to figures 2-4, Ransford discloses a scanning optical monitoring system, comprising:

a tunable optical filter (i.e., tunable band pass filter 410, Fig. 4) that scans a pass band across a signal band of a WDM signal to generate a filtered signal;

a photo detector (i.e., first O-E converter 25, Fig. 2) that generates an electrical signal in response to the filtered signal;

a decision circuit (i.e., decision circuit 60, Fig. 2) that compares the electrical signal to a threshold; and

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a controller (i.e., microprocessor 65, Fig. 2) that is responsive to the decision circuit to inventory channels in the WDM signal (col. 5, lines 42-56 and from col. 8, line 65 to col. 11, line 22).

Regarding claim 7, Ransford further teaches the controller compares an instantaneous pass band of the tunable filter to a response of the decision circuit to determine the channel inventory of the WDM signal (Fig. 2).

Regarding claims 8 and 26, Ransford further teaches the controller compares the channel inventory to perpetual inventory information to assess a validity of the WDM signal (Fig. 2).

Regarding claim 14, Ransford further teaches a timing recovery circuit (45)(Fig. 2) that controls sampling of the decision circuit by the controller.

Regarding claims 15 and 28, Ransford further teaches the controller (i.e., microprocessor 65, Fig. 2) generates a threshold set signal the specifies a level of the threshold applied by the decision circuit (60)(Fig. 2).

Regarding claim 30, Ransford further teaches determining the instantaneous pass band of the filter by reference to a delay from a generation of a trigger signal starting the scan (Fig. 2).

6. Claims 1, 7, 8, 15, 21, 22, 26, 28 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi (US Patent No. 5,838,488).

Regarding claims 1, 21 and 22, referring to figures 1 and 2, Kobayashi discloses a scanning optical monitoring system, comprising:

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a tunable optical filter (i.e., tunable band pass filter 22, Fig. 1) that scans a pass band across a signal band of a WDM signal to generate a filtered signal;

a photo detector (i.e., first O-E converter 23, Fig. 1) that generates an electrical signal in response to the filtered signal;

a decision circuit (i.e., decision circuit 26, Fig. 1) that compares the electrical signal to a threshold; and

a controller (i.e., selector 29, Fig. 1) that is responsive to the decision circuit to inventory channels in the WDM signal (see from col. 2, lines 32 to col. 4, line 34).

Regarding claim 7, Kobayashi further teaches the controller compares an instantaneous pass band of the tunable filter to a response of the decision circuit to determine the channel inventory of the WDM signal (Figs. 1 and 2).

Regarding claims 8 and 26, Kobayashi further teaches the controller compares the channel inventory to perpetual inventory information to assess a validity of the WDM signal (Figs. 1 and 2).

Regarding claims 15 and 28, Kobayashi further teaches the controller generates a threshold set signal that specifies a level of the threshold applied by the decision circuit (Figs. 1 and 2).

Regarding claim 31, referring to figures 1 and 2, Kobayashi discloses a method for analyzing a WDM signal comprising:

tuning a pass band of a filter across a signal band of the WDM signal to generate a filtered signal in a first scan of the WDM signal;

detecting the filtered signal;

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comparing a level of a detection signal to a first threshold;
comparing an instantaneous pass band of the filter to a level of the detection signal relative to the first threshold;
tuning the passband of the filter across the signal band in a second scan of the WDM signal;
comparing the level of the detection signal to a second threshold;
comparing an instantaneous pass band of the filter to a level of the detection signal relative to the second threshold; and
comparing the first scan and the second scan to determined channel power (see from col. 2, lines 32 to col. 4, line 34).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-5, 9-12, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ransford et al (US Patent No. 6,532,087) in view of Vanoli et al (US Patent No. 5,943,147 cited by applicant).

Regarding claims 2-4, 23 and 24, Ransford teaches all the limitations of the claimed invention as set forth in the rejection to claims 1, 21 and 22 above except fails to teach the tunable optical filter tunes across the signal band in less than 1 millisecond.

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However, Vanoli teaches a tunable optical filter tunes across the signal band in less than 1 millisecond (Figs. 1, 3, 5 and 11, col. 11, lines 42-67 and col. 12, lines 1-37 and col. 13, lines 34-67). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the tunable optical filter tunes across the signal band in less than 1 millisecond as taught by Vanoli in the system of Ransford. One of ordinary skill in the art would have been motivated to do this since Vanoli suggests in column 13, lines 34-67 that using such a tunable optical filter tunes across the signal band in less than 1 millisecond has advantage of allowing the filter will have no time to heat, hereby; its thermal instability will have no time to affect very much, so the filter's wavelength response will change hardly at all.

Regarding claim 5, the combination of Ransford and Vanoli teaches the tunable optical filter is a Fabry-Perot filter (Figs. 1 and 3 of Vanoli, col. 11, lines 42-67 and col. 12, lines 1-37).

Regarding claim 9, the combination of Ransford and Vanoli teaches the tunable filter comprises an electrostatic drive cavity in which an electrostatic field is generated to displace a flexible membrane of the tunable filter (col. 11 of Vanoli, lines 42-67 and col. 12, lines 1-37).

Regarding claims 10-12, the combination of Ransford and Vanoli teaches a free spectral range of the tunable filter is greater than a bandwidth of the signal band of the WDM signal (col. 11 of Vanoli, lines 42-67 and col. 12, lines 1-37 and col. 13, lines 34-67).

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9. Claims 6 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ransford et al (US Patent No. 6,532,087) in view of Bach et al (US Patent No. 6,606,354).

Regarding claims 6 and 25, Ransford teaches all the limitations of the claimed invention as set forth in the rejection to claims 1 and 22 above except fails to teach an electronic filter that low pass filters the electronic signal from the photo detector. However, Bach teaches an electronic filter (i.e., low pass filter 3, Fig. 2) that low pass filters the electronic signal from the photo detector (col. 3, lines 27-61 and col. 4, lines 1-20). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the electronic filter that low pass filters the electronic signal from the photo detector as taught by Bach in the system of Ransford. One of ordinary skill in the art would have been motivated to do this since Bach suggests in column 3, lines 27-61 and col. 4, lines 1-20 that using such an electronic filter that low pass filters the electronic signal from the photo detector has advantage of allowing selecting the wanted signal and eliminating the unwanted signals and signal noise and increasing the signal to noise ratio.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ransford et al (US Patent No. 6,532,087) in view of Vanoli et al (US Patent No. 5,943,147 cited by applicant) and further in view of Delavaux et al (US Patent No. 5,646,762).

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Regarding claim 13, Ransford as modified by Vanoli above teaches all the limitations of the claimed invention as set forth in the rejection to claim 12 above except fails to teach a WDM filter for separating the filtered signal into a first sub-band and a second sub-band and a first sub-band detector and second sub-band detector.

However, Delavaux teaches a WDM filter for separating the filtered signal into a first sub-band and a second sub-band and a first sub-band detector and second sub-band detector (Fig. 1, col. 2, lines 37-67, col. 3, lines 1-67 and col. 4, lines 1-4). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the WDM filter for separating the filtered signal into a first sub-band and a second sub-band and a first sub-band detector and second sub-band detector as taught by Delavaux in the system of Ransford modified by Vanoli. One of ordinary skill in the art would have been motivated to do this since Delavaux suggests in column 2, lines 37-67, col. 3, lines 1-67 and col. 4, lines 1-4 that using such a WDM filter for separating the filtered signal into a first sub-band and a second sub-band and a first sub-band detector and second sub-band detector has advantage of allowing calibration can be performed simultaneously with monitoring. This can be used to accomplish faster and more accurate scanning.

11. Claims 16-20 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ransford et al (US Patent No. 6,532,087) in view of Delavaux et al (US Patent No. 5,646,762).

Regarding claim 16, Ransford teaches all the limitations of the claimed invention as set forth in the rejection to claim 1 above except fails to teach a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter. However, Delavaux teaches a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter (Fig. 1, from col. 2, line 38 to col. 4, line 38). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the filter tuning voltage generator that generates a tuning voltage to the optical tunable filter as taught by Delavaux in the system of Ransford. One of ordinary skill in the art would have been motivated to do this since Delavaux suggests in column 2, lines 37-67, col. 3, lines 1-67 and col. 4, lines 1-4 that using such a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter has advantage of allowing monitoring of wavelengths of the channels in the optical fiber and selecting the desired wavelength.

Regarding claims 17, 18, and 29, Ransford teaches all the limitations of the claimed invention as set forth in the rejection to claims 1 and 22 above except fails to teach a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter that improves a linearization of the tuning of the passband as a function of time over at least a portion of the scan of the signal band. However, Delavaux teaches a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter that improves a linearization of the tuning of the passband as a function of time over at least a portion of the scan of the signal band (col. 2, lines 37-67, col. 3, lines 1-67 and col. 4, lines 1-4). Therefore, it would have been obvious to one having skill in the art at

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the time the invention was made to incorporate the filter tuning voltage generator that generates a tuning voltage to the optical tunable filter as taught by Delavaux in the system of Ransford. One of ordinary skill in the art would have been motivated to do this since Delavaux suggests in col. 2, lines 37-67, col. 3, lines 1-67 and col. 4, lines 1-4 that using such a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter that improves a linearization of the tuning of the passband as a function of time over at least a portion of the scan of the signal band has advantage of allowing monitoring of wavelengths of the channels in the optical fiber and selecting the desired wavelength.

Regarding claim 19, the combination of Ransford and Delavaux teaches the filter tuning voltage generator maps an inverse of a tuning function of the optical tunable filter (col. 3 Delavaux, lines 38-67 and col. 4, lines 1-14).

Regarding claim 20, the combination of Ransford and Delavaux teaches the filter tuning voltage generator comprises a look-up table (col. 3 Delavaux, lines 38-67 and col. 4, lines 1-14).

12. Claims 16-20, 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ransford et al (US Patent No. 6,532,087) in view of Salomaa (Pub. No. US 2002/0030868).

Regarding claim 16, Ransford teaches all the limitations of the claimed invention as set forth in the rejection to claim 1 above except fails to teach a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter. However, Salomaa

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teaches a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter (Fig. 3, pages 2 and 3, paragraphs [0025]-[0037]). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the filter tuning voltage generator that generates a tuning voltage to the optical tunable filter as taught by Salomaa in the system of Ransford. One of ordinary skill in the art would have been motivated to do this since Salomaa suggests in pages 2 and 3, paragraphs [0025]-[0037] that using such a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter has advantage of allowing monitoring of wavelengths of the channels in the optical fiber and selecting the desired wavelength.

Regarding claims 17, 18, and 29, Ransford teaches all the limitations of the claimed invention as set forth in the rejection to claims 1 and 22 above except fails to teach a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter that improves a linearization of the tuning of the passband as a function of time over at least a portion of the scan of the signal band. However, Salomaa teaches a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter that improves a linearization of the tuning of the passband as a function of time over at least a portion of the scan of the signal band (Figs. 3, 5 and 6, pages 2 and 3, paragraphs [0025]-[0037]). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the filter tuning voltage generator that generates a tuning voltage to the optical tunable filter as taught by Salomaa in the system of Ransford. One of ordinary skill in the art would have been

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motivated to do this since Salomaa suggests in pages 2 and 3, paragraphs [0025]-[0037] that using such a filter tuning voltage generator that generates a tuning voltage to the optical tunable filter that improves a linearization of the tuning of the passband as a function of time over at least a portion of the scan of the signal band has advantage of allowing monitoring of wavelengths of the channels in the optical fiber and selecting the desired wavelength.

Regarding claim 19, the combination of Ransford and Salomaa teaches the filter tuning voltage generator maps an inverse of a tuning function of the optical tunable filter (Figs. 3, 5 and 6 of Salomaa, pages 2 and 3, paragraphs [0025]-[0037]).

Regarding claim 20, the combination of Ransford and Salomaa teaches the filter tuning voltage generator comprises a look-up table (Figs. 3, 5 and 6 of Salomaa, pages 2 and 3, paragraphs [0025]-[0037]).

Regarding claim 27, the combination of Ransford and Salomaa teaches tuning multiple modes of the filter across the signal band simultaneously table (Figs. 3, 5 and 6 of Salomaa, pages 2 and 3, paragraphs [0025]-[0037]).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Atia et al (US Patent No. 6,628,407) discloses system and process for side more suppression by tunable filter.

Korn (US Patent No. 6,509,972) discloses tunable filter system.

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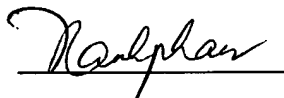
Korn et al (US Patent No. 6,407,376) discloses optical channel monitoring system.

Lange et al (US Patent No. 6,542,277) discloses optical receiver.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (703)306-5840.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (703)305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.



Hanh Phan

12/04/2003